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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
THE BOARD OF APPEALS AND INTERFERENCES**

Applicants: Michael Smith et al.

Serial No.: 09/309,396

Title: HOP EXTRACT OF DEFINED COMPOSITION

Filing Date: May 7, 1999

Group Art Unit: 1761

Examiner: Curtis E. Sherrer

Docket No.: YC1.P07

Yakima, Washington 98902  
November 12, 2002

TO THE ASSISTANT COMMISSIONER FOR PATENTS  
Washington D.C. 20231

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**APPEAL BRIEF**

Sirs:

The above listed Applicants and now Appellants, in regards to the above listed application for a non-provisional U.S. letters patent, hereby submits this Appeal Brief to the Board of Patent Appeals and Interferences, in response to a Final Office Action by the Primary Examiner. The Final Office Action was mailed on April 10, 2002 and finally rejected claims 1 and 2, and 12 through 16 of the application.

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A Notice of Appeal was filed on September 10, 2002, within the properly extended period of response to the above mentioned Final Office Action. Accordingly, under 37 C.F.R. § 1.192(a), this Appeal Brief was due November 10, 2002, but since November 10, 2002 was a Sunday, and Monday, November 11, 2002 was a Federal Holiday, this brief is timely filed by U.S. Express Mail on Tuesday, November 12, 2002. Enclosed is a check in the amount of \$160.00 in accordance with 37 C.F.R. § 1.17(b).

#### RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are known to the Appellant or the Appellants' legal representative, which will directly affect or will be directly affected by or have bearing on the Board's decision in the pending appeal.

#### STATUS OF CLAIMS

Claims 1 and 2, and 12 through 16 are currently pending and are reproduced in Appendix I, attached hereto. Claims 3 through 11, and 17 through 19 stand as withdrawn from consideration by prior amendment of the Applicants. The remaining claims all stand rejected under 35 U.S.C. § 103(a), unpatentable over U.S. Patent No. 4,212,895 to Laws et al., or U.S. Patent No. 4,218,491 to Laws et al.

#### STATUS OF AMENDMENTS

No amendment has been filed subsequent to final rejection.

## SUMMARY OF INVENTION

The invention is directed to an enriched alpha-acid hop extract product formed from a carbon dioxide extraction of whole hops. The enriched alpha-acid hop extract product has a purified alpha acids component, which is formed from a refined portion of a whole hop extract.

Independent claim 1 is directed to an enriched alpha-acid hop extract. The total alpha-acids concentration of the enriched alpha-acid hop extract is supplemented, by the addition of purified alpha-acids.

Independent claim 13 is directed to the enriched alpha-acid hop extract from a whole hop extract. The total alpha-acids concentration of the enriched alpha-acid hop extract is supplemented, by the addition of a purified alpha-acids from the whole hop extract.

The enriched alpha-acid hop extracts of independent claims 1 and 13 have an alpha-acids concentration greater than 60% by weight, a total beta-acids concentration less than 20% by weight, and a total hop essential oils concentration in excess of 1% by weight.

Dependent claims 2 and 12, are directed to further refinements of the product having the particular properties described in claim 1, above, or to further refinements of the purified alpha-acids employed in the process of the present invention.

Dependent claims 14 through 16, are directed to further refinements of the product having the particular properties described in claim 1, above, to further refinements of the purified alpha-acids employed in the process of the present invention, or mixing and storage features of the product.

#### ISSUE

Are claims 1 and 2, and 12 through 16 unpatentable under 35 U.S.C. § 103 (a), over U.S. Patent No. 4,212,895 to Laws et al., or U.S. Patent No. 4,218,491 to Laws et al., as further interpreted under *In re Levin*, 178 F.2d 945, 84 USPQ 232 (CCPA 1949).

#### GROUPING OF CLAIMS

Claims 1, 2 and 12 form a Group I, with respect to the issues set forth in the Issue, above. In particular, independent claim 1 recites a product that includes an additive of purified alpha-acids.

Dependent claims 2 and 12, add further refinements to the product of independent claim 1. The appealed claims are otherwise separately patentable over the cited references, as further discussed in the Argument section of this brief, set forth below.

Claims 13 through 16 form a Group II, with respect to the issues set forth in the Issue, above. In particular, independent claim 13 is directed to a product that includes an additive of purified alpha-acids formed from a refined portion of the whole hop extract.

Dependent claims 14 through 16, add further refinements to the product of independent claim 13. The appealed claims are otherwise separately patentable over the cited references, as further discussed in the Argument section of this brief, set forth below.

## ARGUMENT

At issue is whether claims 1 and 2, and 12 through 16 are unpatentable under 35 U.S.C. § 103 (a), over U.S. Patent No. 4,212,895 to Laws et al., or U.S. Patent No. 4,218,491 to Laws et al., as further interpreted under *In re Levin*.

### **Group I: Claims 1, 2 and 12 - Product Claims**

Independent claim 1 recites an enriched carbon dioxide extracted hop extract product, in which a whole hop extract is supplemented by the addition of purified alpha-acids. The resultant alpha-acids concentration is greater than 60% by weight, a total beta-acids concentration less than 20% by weight, and a total hop essential oils concentration in excess of 1% by weight.

Claim 2 recites the limitations of claim 1, and adds the further limitation that the total alpha-acids concentration is approximately 70% by weight.

Claim 12 recites the limitations of claim 1, and adds the further limitation that the purified alpha-acids are formed from an alkali hydroxide fractionation of a whole hop extract.

### **A. Laws et al.**

In regards to the above discussed claims of Group I, the Appellants primarily refer to the Examiner's Office Action of June 30, 2000, which contains the reasoning for the rejection of the claims in question. The cited claims are rejected under 35 U.S.C. § 103 (a), as being unpatentable over U.S. Patent No. 4,212,895 to Laws et al., or U.S. Patent No. 4,218,491 to Laws et al. The Examiner's June 30, 2000 Office Action is then referenced and reasserted in the Office Actions of December 28, 2000, September 21, 2001, and April 10, 2002, with little further comment on the two Laws et al. references. Instead, the Examiner responds only to dismiss the Applicants' arguments.

Regarding the two Laws et al. references, the Examiner reiterates in the December 28, 2000 Office Action that the two Laws et al. processes are not combined in the Examiner's rejection. Instead the Examiner, without any specific reference, asserts that "it would have been obvious to those of ordinary skill in the art to modify the amounts of the various hop constituents to derive a final product that contains the proportions and amounts of said constituents that the 'brewmaster' desires so as to obtain a beer with the desired balance of acids and aromas." The Examiner then adds that "clearly, the mixture of (Laws et al.) '895 and (Laws et al.) '491 compositions, for example 50/50, would produce the claimed product." The Examiner is conflicted as to the nature of his reasserted rejection, and the Appellants again assert that:

**The Examiner's reliance on either Laws et al. reference fails, in that neither teaches nor suggests a properly comparable product, especially one having the claimed components in the required concentrations.**

Specifically, Laws et al. '491 teaches a CO<sub>2</sub> hop extract having the following typical composition (likely given in wt. %), as reported in the table beginning on line 15 of column 3, therein:

alpha-acids	40 to 75, usually 40 to 65
beta-acids	20 to 40, usually 25 to 35
total resins	70 to 98, usually 80 to 95
hop oil	up to 10, usually up to 3
water	up to 5, usually 2 to 5

Additionally, Laws et al. '491 fails to teach the blending, mixing or supplementing of this product with any other CO<sub>2</sub> extraction product.

On the other hand, the Laws et al. '895 reference relates to isomerization techniques, to convert alpha-acids into iso-alpha-acids. The Laws et al. '895 technique can employ the same CO<sub>2</sub> hop extract as Laws et al '491. Importantly, Laws et al. '895 fails to teach the blending, mixing or supplementing of this product with any other CO<sub>2</sub> extraction product. Most importantly, the mixing of an isomerized extract with a whole hop extract in a "50/50 mix," as suggested by the Examiner, can not result in the Appellants' claim.

The need for specificity is a pervasive theme in the analysis of obviousness under §103. “There must be a reason or suggestion in the art for selecting the [combination], other than the knowledge learned from the Applicant’s disclosure.” *In re Dow Chemical Co.*, 837 F.2nd 469,473, 5 U.S.P.Q.2d 1529 (Fed. Cir. 1988). “In determining whether a particular combination of prior art elements is taught or suggested, it is critical to consider “the particular *results* achieved by the new combination. . . .” *Interconnect Planning Corp v. Feil*, 744 F.2d 1132,1143,227 U.S.P.Q.2d 543 (Fed. Cir. 1985)(emphasis added). “Our case law makes clear that the best defense against the subtle but powerful attraction of a hind-sight based obviousness analysis is a rigorous application of the requirement for a showing of the teaching to combine prior art references.” *In re Dembicza*k, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

There is nothing in the prior art of record that teaches dilution of purified hop extracts with whole hop extract to achieve a higher quality, consistent product having improved handling and storage characteristics. There is *no* motivation disclosed by either cited Laws et al. reference, to combine a whole hop extract with a purified extract. Once a purified extract is obtained, conventional, common sense practice teaches away from then re-introducing such a refined product stream into a raw product stream.

#### **B. *In re Levin***

In regards to the above discussed claims of Group I, the Appellants again refer to the Examiner’s Office Action of June 30, 2000, which contains the reasoning for the rejection of the

claims in question. The cited claims are further rejected under 35 U.S.C. § 103 (a), as being unpatentable as being “point in fact situation of the instant case,” by the Examiner of *In re Levin*, 178 F.2d 945, 84 USPQ 232 (CCPA 1949). The Examiner’s June 30, 2000 Office Action is then referenced and reasserted in the Office Actions of December 28, 2000, September 21, 2001, and April 10, 2002, with comments to further substantiate the supposed validity of *In re Levin* as an appropriate basis for rejecting the Appellants’ claims.

***In re Levin* provides no basis for applying the *per se* rule that recipes are not patentable.**

By labeling the claimed invention as a “recipe” and then applying a *per se* rule gleaned from *In re Levin* to assert that recipes are not patentable, the Examiner is relying on fallacious reasoning to reject the Appellants’ claims. As clearly stated in *In re Ochiai*, 71 F.3d 1565, 37 USPQ2d 1127 (Fed.Cir. 1995) there are no *per se* rules when determining obviousness under 35 U.S.C. § 103 (a). The Examiner’s administrative convenience in applying this “recipe rule” is inconstant with section 103, as properly interpreted in light of *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Being that the claims are considered proper otherwise, the Appellants are entitled to issuance of their patent unless the PTO establishes that the invention as claimed is obvious over cited prior art, based on the specific comparison of that prior art with the limitations of the claims.

## **Group II: Claims 13 through 16 - Product Claims**

Claims 13 through 16 form a Group II with respect to the issues as set forth in regards to Group I, above. Claim 13 is considered by the Appellants as a variation in the product of claim 1, in that claim 1 does not require the supplemented component be derived from the same whole hop extract.

Independent claim 13 is directed to an enriched alpha-extract product that includes an additive of purified alpha-acids formed from a refined portion of the whole hop extract. The whole hop extract formed from a carbon dioxide solvent extraction. The resultant alpha-acids concentration of the enriched product is greater than 60% by weight, the total beta-acids concentration less than 20% by weight, and the total hop essential oils concentration in excess of 1% by weight.

Claim 14 recites the limitations of claim 13, and adds the further limitation that the total alpha-acids concentration of the product is approximately 70% by weight.

Claim 15 recites the limitations of claim 13, and adds the further limitation that the purified alpha-acids are formed from an alkali hydroxide fractionation of a whole hop extract.

Claim 16 recites the limitations of claim 13, and adds the further limitation that the second whole hop extract component be solvent free and is added to stabilize the purified alpha-acids component in storage.

**A. Laws et al.**

As in regards to the above discussion of claims of Group I, the cited claims of Group II are also rejected under 35 U.S.C. § 103 (a), as being unpatentable over U.S. Patent No. 4,212,895 to Laws et al., or U.S. Patent No. 4,218,491 to Laws et al.

In addition to the points presented in the above discussion, the Appellants insist that these two references, coupled with the knowledge of one of ordinary skill, as cited by the Examiner, is insufficient to establish a prima facie case of obviousness, with respect to the claims under appeal. See *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of obviousness is established by presenting evidence that would have led one of ordinary skill in the art to combine the relevant teachings of the references to arrive at the claimed invention. See *In re Litner*, 458 F2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). The applied prior art does not suggest the claimed invention.

**The applied prior art does not teach or suggest using mixing purified components to achieve a hybrid product having the benefits of a purified extract in a what was previously only a whole hop extract in form.**

To supply the omissions in the teachings of the applied prior art, the Examiner made determinations (on page 3 of the June 30, 2000 Office Action,) that the differences would have been an obvious choice to a person skilled in the pertinent art. However, this determination by the Examiner has not been supported by any evidence that would have led the skilled person to arrive at the claimed invention. The Appellants point to the originally filed specification as detailing the method of the processes, the previously unrealized advantages and benefits of the product and its significant potential for commercial success.

In the subsequent Office Actions, the Examiner asserts that the Laws et al. '491 patent teaches much the same as the Laws et al. '895 patent. However, these two patents by Laws et al. are not "much the same." Laws et al. '895 deals with the production of isomerized alpha acids, while Laws et al. '491 later teaches an improved CO<sub>2</sub> extraction of hops. This is a glaringly clear distinction between these two patents and their teachings, to any person skilled in the art of hop extraction and processing, and should be much clearer to the Examiner than they apparently are.

The only suggestion for modifying either Laws et al. reference in the manner provided by the Examiner to include the addition of purified extract to whole hop extract in to product detailed in the Appellants' claimed formulation, stems from hindsight knowledge to support an obviousness rejection under § 103. Again, this assertion is impermissible, see *W.L. Gore and Associates, Inc. v. Garlock, Inc.*, 721 F. 2d 1540, 1553, 220 USPQ 303, 312-13 )FED. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

The Examiner has misinterpreted and impermissively modified the Laws et al. references. The Federal Circuit in *In re Fritch*, 972 F.2d 1260, 23 USPQ 2d 1780, 1783-84 (Fed. Cir 1992), (quoting *In re Fine*, 837 F. 2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988), stated as follows:

The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. . . . Here the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention.”

Nowhere do the Laws et al. references specifically suggest that a mixture of products, mixed back into the raw extract can be utilized, or be of any benefit.

The Appellants wish to again clarify that the Laws et al. patents compare CO<sub>2</sub> extraction products to prior art organic extraction products. The Applicants are not merely claiming a purified product, as offered by the Laws et al. references, but a mixture of two heretofore uncombined product streams.

**B. *In re Levin***

As stated above in regards to the claims of Group I, the Examiner then cites *In re Levin*, 178 F.2d 945, 84 USPQ 232 (CCPA 1949), in maintaining his rejection of the claims, including those of Group II. The Appellants' product is not a recipe or formula that with simple variation in a component. The Applicants have developed a new and materially different intermixture exhibiting properties that the separate ingredients do not individually possess.

The proportions claimed are critical in realizing these properties. The compounding procedure is unusual in that it recombines product streams that are not recombined in that the industry practice teaches away from such recombination. Mass produced beverages are certainly required to be consistent in quality and taste. Homogeneity and precision in the hop extract industry is vital in the production of consistent product. The Appellants respectfully request to reconsider the utility of their claims, as they are made in the highly competitive and intensely researched field of hop derived products.

Although it is known to purify hop extract, it is not known to recombine purified extract into the whole hop extract. One skilled in the art would certainly avoid the Appellants' process, labeling it counterproductive. At best, a blended product so produced, would be expected to perform no better than the whole extract prior to enrichment. The unforeseen advantages of this whole extract enrichment include the stabilization of the product and the consistent homogeneity in the product

that is afforded by the re-introduction of specific purified steams back into the whole hop extract. As noted by the Appellants in their originally filed specification (beginning on page 9, line 28 therein), the blended formulation also unexpectedly exhibits a better consistency for pouring and flow, when compared to either the whole extract or purified components. This is a new, unexpected and very useful function.

Therefore, in view of the above arguments and citations, the Appellants requests the Board to reverse the rejections of claims 1, 2 and 12 through 16, as the Examiner has failed to make a *prima facie* case of obviousness. Additionally, the Appellants assert that a section 103 rejection based upon *In re Levin* is not proper, but only section 103 rejections based upon cited prior art.

Respectfully submitted,  
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## APPENDIX

The following is claimed:

1. An enriched alpha-acid hop extract product formed from a carbon dioxide extraction of whole hops, the enriched alpha-acid hop extract product having:
  - an alpha-acids concentration supplemented by the addition of purified alpha-acids, the resultant alpha-acids concentration greater than 60% by weight;
  - a total beta-acids concentration of less than 20% by weight; and
  - a total hop essential oils concentration in excess of 1% by weight.
2. The enriched alpha-acid hop extract product of claim 1, wherein the total alpha-acids concentration is approximately 70% by weight.
12. The enriched alpha-acid hop extract product of claim 1, wherein the purified alpha-acids are formed from an alkali hydroxide fractionation of a whole hop extract.
13. An enriched alpha-acid hop extract product having:
  - a whole hop extract component produced by a carbon dioxide solvent extraction, the whole hop extract component including alpha-acids, beta acids and hop essential oils, hard resins and waxes;
  - a purified alpha acids component formed from a refined portion of the whole hop extract component; and

the enriched alpha-acid hop extract having a total alpha-acids concentration greater than 60% by weight, a total beta-acids concentration less than 20% by weight, and a total hop essential oils concentration in excess of 1% by weight.

14. The enriched alpha-acid hop extract product of claim 13, wherein the enriched alpha-acid hop extract product has a total alpha-acids concentration of approximately 70% by weight.
15. The enriched alpha-acid hop extract product of claim 13, wherein the purified alpha-acids are formed from an alkali hydroxide fractionation of the whole hop extract.
16. The enriched alpha-acid hop extract product of claim 13, wherein:
  - the whole hop extract is a first whole hop extract;
  - the second whole hop extract component is an organic solvent free, second whole hop extract component; and
  - the purified alpha acids component stabilized in storage by the first whole hop extract component.